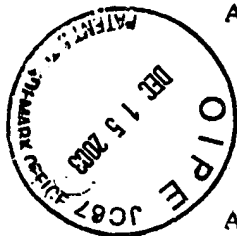
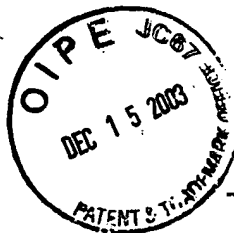


Application No.: 09/981,388
 Attorney Docket: JAMES-014B



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Wayne John Harrison)	Confirmation
)	No.: 6815
Serial No.:	09/981,388)	
Filed:	10/17/2001)	Art Unit: 1733
For:	IMPROVEMENTS IN OR)	Examiner: Unknown
	RELATING TO CONTAINERS)	



DECLARATION UNDER 37 C.F.R. §1.132

I, Wayne John Harrison, a citizen of New Zealand, 318 Mill Road, Alfriston, Manukau City, Auckland, New Zealand, do solemnly and sincerely declare that:

1. I am the inventor named in United States patent application No. 09/981,388.
2. I have been involved in the developments of Insulbox (NZ) Limited ("Insulbox") since its incorporation in 1992.
3. Insulbox has been involved in the manufacture of insulated packaging material primarily for the foodstuffs industry. I have been involved extensively in the development, and marketing of Insul-Box products and processes. In the course of those dealings I have gained extensive knowledge in the field of insulating packaging material technology and manufacturing methods in both New Zealand and in Australia. Over the course of the development of the method described in United States patent application No. 09/981,388 I performed substantial investigations regarding the state of the art in the field of corrugated products in New Zealand and overseas. I am well qualified to make comments of the state of the art in this field in New Zealand and overseas prior to 1997.
4. I am authorised by Insulbox to make this declaration.
5. Development of the method that is the subject of United States patent application No. 09/981,388 began in 1993. At that stage I only had the basic concept around the idea. It was my intention to develop a cardboard-based insulating product that would have high crush strength, be able to contain a substantial amount of product, be leak proof and have a good thermal capacity. My aim was to have a thermal capacity of between 4°C and 7°C over 24 hours. I also envisaged using "C" flute corrugated construction.
6. The only commercially successful methods of laminating corrugated substrates with metallised insulating outer layers suitable for the foodstuff industry was sheet lamination. In

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sheet lamination, a precorrugated web has an adhesive applied to it and the desired laminate is subsequently applied thereto.

7. In a standard corrugator, the web that is to be corrugated is fed into the corrugator rollers and preheated to approximately 175°C. The corrugating rollers impart the corrugation effect to the web. A paper backing is then adhered to the corrugated web, forming the familiar corrugated board. It is to this paper lining that any additional lamination would be adhered to.

8. My idea was to produce a corrugated board, but instead of the additional step of placing the backing on the corrugated board and then affixing a laminar, to apply the laminar material directly to the corrugated web in the corrugator as part of the corrugation process. I envisaged that this would speed up the corrugation process significantly, and have significant commercial advantages.

9. As it turned out, this process was not simple and took some time to perfect. The selection of materials that would suit both the corrugation process and the requirements of the end use of the product that resulted, proved to be the key to success.

10. In April 1993, I instructed Carter Holt Harvey Ltd (CHH) to trial the manufacturing process. There were some doubts as to the feasibility of this manufacturing procedure because of a number of factors. Firstly, metallised polyester had never been introduced in the corrugating procedure for insulating materials. It was also unknown what market quantities would be required. We were also unsure of the feasibility of the process as the corrugator was not designed for plastics. Furthermore, the thermal qualities of the laminated board were unknown.

11. Subsequently we needed to research the thermal packaging market and to research the thermal qualities of laminated corrugated board that we were trialling. We also needed to research the parameters of the corrugators and the processes.

12. Through the course of our trials, we discovered that the use of metallised polyester and pre-laminate (pre-made laminate) would avoid most of the manufacturing problems perceived. A New Zealand Ministry of Agriculture and Fisheries (MAF) report proved that the thermal qualities of the board produced were as desired, and that they created a leak proof package.

13. In late May of 1994 trials continued with a two piece box, with double sided laminate.

14. The trials were initially unsuccessful. The problems we experienced are detailed in a report (the Braxton report) by Mr J. W. Braxton, an employee of CHH who also headed the trials at CHH. Accompanying this Declaration is a copy of the Braxton report. From page 1, under the heading "Situation" it is stated that

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"difficulties were experienced during manufacture of board and consequently after several attempts production was discontinued on the corrugator."

The same paragraph also states

"other production difficulties were associated with the printing. A review of the situation established that slippage of the board at the double backer hot plate section was the problem with the board manufacture and ink smudging was a problem with the finished case."

15. On page 6 of the Braxton report under "Conclusion", it is stated that

"From the results it appears that excessive friction is generated between the metallised polyester and the metal surface of the hot plates.

This was overcome with an application of lubricant however a very oily film was left on the sheet (the lubricant used was a food grade oil).

Static electricity does not seem to be contributing to the problem.

This result does raise some questions.

The oil film left on the surface of the sheet,

- 1. Will it make printing on its surface even harder than it already is?*
- 2. Will it be acceptable if a food product is to be packed into it?*
- 3. Will the oily surface be a problem when handled?"*

Further on the question is posed,

"Is the metallised on the paper side of the polyester or on the outside, if on the outside it could possibly be put on the paper side. It may help."

16. Clearly there were initial problems to be overcome, and the first trials were not particularly successful. The upshot of the Braxton report was that it highlighted the manufacturing problems introduced by double sided laminate and printing. All product was rejected due to the printing problem and delamination.

17. From there I decided to introduce a superior metallised polyester laminate into the corrugating process.

18. Many of the pre-laminates we tried would delaminate and form bubbles or other delamination marks after being put through the corrugator. We determined that this was because of the significant amount of heat that was generated in the corrugation process which was damaging the adhesive properties of the plastic to its paper backing. Another problem was scuffing of the metallised surface as it was being put through the corrugator.

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19. The above problems were overcome when we tried a metallised polyester whose metallised surface was adjacent the paper backing of the pre-laminate. Further improvements were achieved when the side adjacent the paper backing was also corona treated and glued to the paper backing. We found that when we put this through the corrugator, we achieved a successful result in that there was no delamination, and there was no scuffing of the metallised surface from excess friction as this was not exposed to the rollers of the corrugator. Thus, oil was not required.

20. The corona treatment also meant that the adhesives used did not deteriorate through the extreme heat of the corrugator. It should be noted that where the laminate is made to both sides of the corrugated web, there is a substantial amount of heat retained in the core of the corrugated web because of the metallised insulating layers on either side. This heat would remain for a lot longer than a conventional corrugation process because of the insulating layers and therefore it is important that the laminates are such that they can withstand the high heat for the extended period of time.

21. It was found that using this method produced efficiently, and in high volumes, metallised film laminated board that met the market demands we were attempting to meet. In particular, the board produced was suitable for use as an insulating board in foodstuff packaging as it was possible to quickly and efficiently laminate, over the entire surface of the corrugated card, an insulating polyester laminate.

22. I am surprised at any allegation that the process was obvious. Indeed, it took some two years of trialling to perfect the process and to identify the best materials for the process. The Braxton report demonstrates how the technical engineers at CHH had difficulty in finding a solution to the problems initially experienced.

23. None of the documentation provided by the examiner identifies a process for forming a laminated sheet material suitable for insulated packaging which includes the steps of corrugating a paper laminar while applying the plastics metallised liner to one or both sides of the corrugated laminar immediately subsequent to the corrugation step in the corrugator, where the plastics metallised liner is a pre-made laminate of a paper backing with a metallised polyester film which is metallised on one side and corona treated on the other side.

24. There is a vast amount of information available regarding laminating processes, laminars and corrugating processes. However, from the sea of information, we were able to identify and develop a process specifically for use in the insulating packaging industry that could be commercially successfully used in that industry.

25. As previously mentioned, sheet laminating involves gluing sheets of the polyester laminate to a pre-corrugated web separately of the corrugation process. The product output rate for sheet lamination falls vastly short of what is possible when our process is used and the metallised polyester is fed directly into the corrugator and adhered to the corrugated web as part of the corrugation process.

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26. It appears that the examiner feels that our claimed process is relatively simple. This is not true as is evidenced by the vast amount of research and development that went into perfecting the technique and choosing the materials and techniques that enabled the process to be run through a corrugator.

27. None of the documents cited by the examiner teach or assert a method that would provide a solution to the problems we were trying to overcome. Indeed, this is exemplified by the fact that none of the documents actually identify any of the problems we were trying to overcome in the corrugation process. That being the case, how can it be said that these documents provide a solution to those problems if those problems had not yet been identified?

28. This is another reason that none of the citations teach the method of the Insulbox patent. These documents have not even considered the matter of the effects of the excess heat on the laminate to its paper backing. The Peers document (US4544597A) does mention the adhesion between the paper backing and the corrugated flutes (see column 8 line 25). However, the delamination that we experienced in initial trials was the polyester sheet removing itself from its paper backing, and not the paper backing to the flutes. Thus it is clear that someone posed with our objective would not be given the solution, or be lead to the solution by reading the Peers document. This is unsurprising however as the Peers document is not directed towards an insulating material, but to decorative artwork.

29. I can identify two major differences between the Insulbox invention and the prior art:

- i) use of a metallised and pre-treated polyester plastic,
- ii) the lamination of a pre-laminate as described with a corrugated medium immediately after corrugation

These enable the original goal of producing a food grade insulated packaging manufactured by introducing the laminar during the corrugation process, as well as other commercial advantages including being able to obtain superior graphics by having a non-paper outer layer, and also having a protected metallised layer.

These differences are of commercial advantage and significance. It also allows a manufacturing process which is commercially advantageous and superior.

30. Further, the prior art does not disclose these differences, nor identify them in any way. These features were arrived at by significant trial and effort, and required problems with the prior art materials and failed combinations to be overcome. The prior art fails to even identify these problems. It fails to indicate that the disclosed combinations would fail if attempted to be manufactured in a simple step corrugation process and fails to disclose how their own disclosed combinations would need to be modified to be successful.

31. Quite simply – the differences are significant and beyond anything the prior art even thought to consider.

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The undersigned being hereby warned that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application or any resulting patent, and declares that all statements made of his own knowledge are true and that all statements made on information and belief are believed to be true

Declared at Auckland, New Zealand

By 

Date: 4/12/03

Wayne John Harrison

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